

efficiency bulletin

Dec. 18, 2017

Efficiency Bulletin: 17-22

Engineering Personnel Initial and Continuing Training

Streamline initial and continuing training for engineering personnel.

Addressees: Chief nuclear officers, NEI APCs and INPO APCs

Issue: TRN-5.4, Engineering Support Personnel Initial and Continuing Training

Summary of Efficiency Opportunity

- Desired end-state—A simplified and graded approach to engineering personnel initial and continuing training programs is implemented.
- Value proposition (vision of excellence)—Maximize the benefit of post-secondary education and allow the continuing training requirements to focus more on work group-specific and performance-based training.
- Why it is important?—The previous guideline version of ACAD 98-004, Guidelines for Training and Qualification of Engineering Personnel Rev 3 did not provide credit for post-secondary education in engineering fundamentals. Therefore, the industry spends three to four weeks covering fundamentals during engineering initial training. Additionally, many sites require engineering personnel to attend “common” sets of training topics during continuing training cycles that are not applicable to all individuals. This requirement is resulting in several days of low-value training for some personnel.
- Industry benchmark value(s)—Alignment of the engineering training programs with the guidance in ACAD 98-004 Rev 4 is expected to reduce the engineering initial training class duration by three to four weeks and continuing training sessions by 10 to 20 percent.
- Measure of effectiveness—1) No occurrences of consequential errors attributed to lack of training, proficiency or competencies. 2) Initial and continuing training class durations are reduced to the benchmark values cited above. Engineering performance remains at current or improved levels.

Color Code: Blue
Due: December 2018

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Relevant Standards

- ACAD 98-004, Guidelines for the Training and Qualification of Engineering Personnel. Revision 4.
- INPO 10-005, *Principles for Maintaining an Effective Technical Conscience*: Engineers recognize the limits of their technical expertise and clearly communicate to decision makers when their expertise is exceeded.

Relevant Regulatory Requirements

- 10CFR 50.120, Training and Qualification of Nuclear Power Plant Personnel

Background

A group of industry training professionals reviewed the industry's overall approach to executing engineering initial and continuing training programs. The group looked at all aspects of initial training, that is, orientation, systems and job performance requirements. The group reviewed processes from each fleet and alliance, ACAD documents and regulatory documents with the vision of a streamlined and efficient approach to training for engineering personnel. The group concluded that the industry is not taking appropriate credit for post-secondary education in the orientation portion of initial training, and therefore train engineering personnel on fundamental topics previously provided by colleges and universities. A review of the job analysis was conducted to ensure that the job performance requirements were adequate for each of the positions listed. Also, sites have built in requirements for "common" continuing training topics that are not applicable to all personnel, yet all are expected to attend. For example, in the fundamentals area, engineering initial training programs require basic thermodynamics training, even though most trainees have already completed a similar course during their college or university studies. Additionally, engineering training programs require all engineers to attend operability determination training, even though some engineers are not qualified or required to perform this task.

Guidance

All fleets/sites should perform a gap analysis of their current engineering training programs with ACAD 98-004 revision 4 and make the applicable changes to program processes. The following highlights the key changes to the revised ACAD:

- Orientation training is focused on topics that are unique to nuclear power.
- Credit for post-secondary engineering fundamentals education can satisfy nuclear power plant fundamentals training requirement.
- Systems and components training requirements are determined based on a SAT approach where major systems and components are determined by the sites.
- The criteria for continuing training program enrollment for utility and supplemental engineers has been clarified.
- Continuing training activities are to focus on the specific needs for each individual engineering discipline to close identified knowledge gaps and skill, improve performance and help to maintain proficiency.

Change Management Considerations

Industry Activities

- Industry webinar to provide background for initiative, INPO discussion and an open forum to clarify expectations and ask questions. Webinar information can be found at the following site: <https://web.inpo.org/Pages/Nuclear-Promise-Issues.aspx>.

Key to Color Codes:

Red: NSIAC initiative – full participation required for viability

Blue: Action expected at all sites, but is not needed for broad industry viability

Green: Utility discretion to implement, consistent with its business environment

Company Actions

- Conduct gap analysis of present training processes to revision 4 of ACAD 98-004. Make changes to program processes, as applicable.
- Conduct a needs analysis for engineering training program instructional staff and other applicable personnel as needed.
- Develop a communication plan or briefing package for the site leadership team and affected personnel.

Guidrails

- Conduct an assessment 6 to 12 months after implementation to verify training activities continue to meet the requirements of the relevant training standards referenced above. The assessment may be scheduled to coincide with existing training self-assessments such as a mid-cycle comprehensive assessment. This assessment should include evaluations of management processes used for determining knowledge and skill equivalencies establishing engineering qualifications.
- Monitor station performance for any unintended consequence. Implementation of this efficiency bulletin should not result in an increase in INPO Tier 2 indicators on consequential engineering errors.
- Managers and supervisors responsible for assigning work should confirm acceptable levels of individual/team proficiency, and verify technical competencies are commensurate with assigned duties.
- Leaders reinforce behaviors that support healthy technical conscience including the responsibility to recognize and inform managers when assigned duties exceed their level of expertise.
- Engineering managers must maintain a rigorous process to verify training and experience equivalencies for engineering personnel. Knowledge and skill equivalency assessments should include one or more of the following methods:
 - Assessment of experience and training from other accredited training programs
 - Comprehensive technical interviews with candidates
 - Subject matter challenge examinations issued to candidates

Report Your Site's Results

Please report your company's implementation of this improvement opportunity, including the date of completion. Send this information along with your company point of contact to EfficiencyBulletin@NEI.org.

Industry Contacts

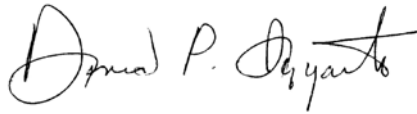
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Industry Approval:

G. T. Powell, CNO Lead



David P. Igyarto, Institute of Nuclear Power Operations

A handwritten signature in black ink that reads "David P. Igyarto". The signature is written in a cursive style with a prominent loop at the end of the last name.

John W. Pitesa, Nuclear Energy Institute

A handwritten signature in black ink that reads "Bill Pitesa". The signature is written in a cursive style with a prominent loop at the end of the last name.